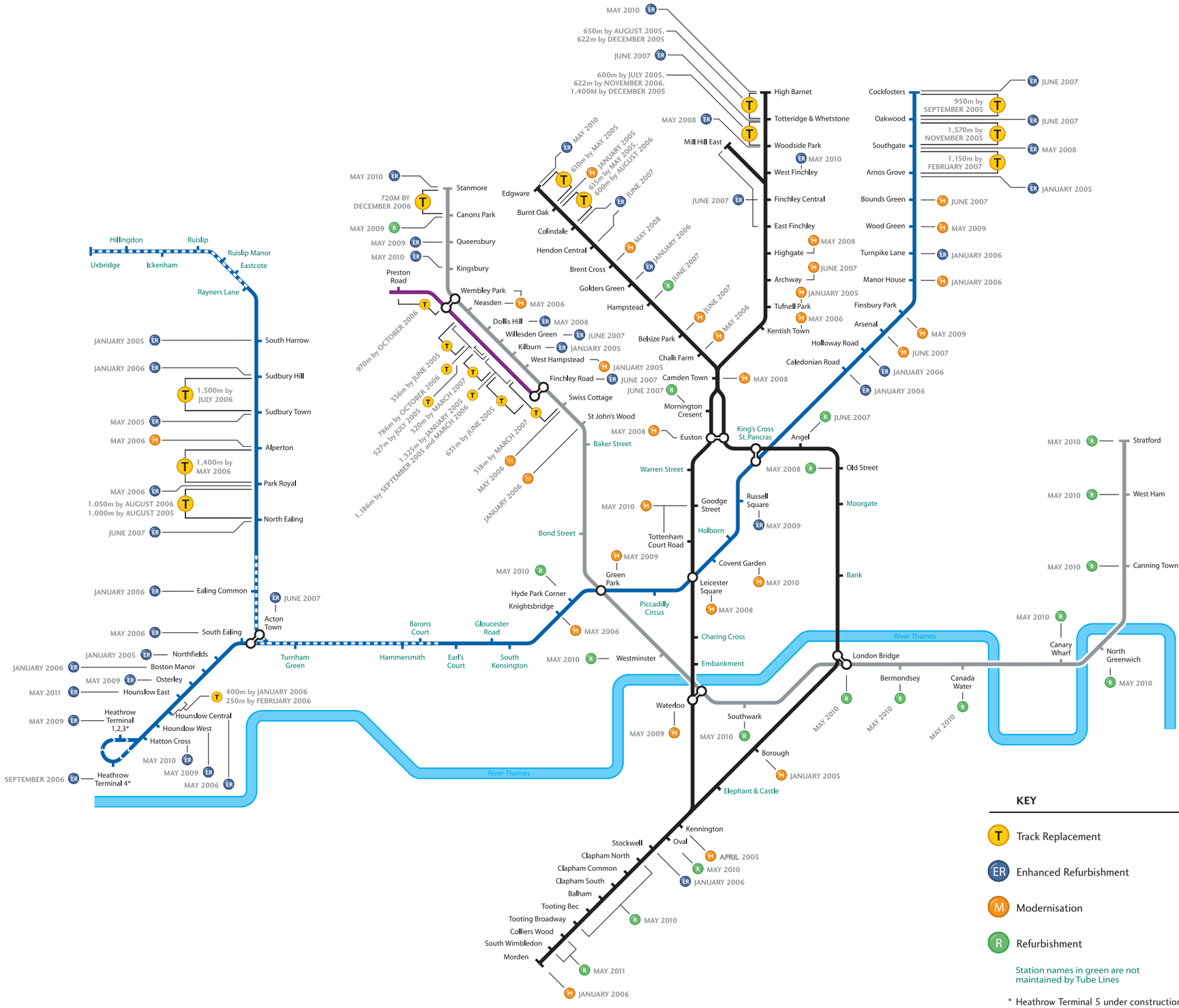
Tube Lines Corporate Review 2004/05

Tube Lines

To deliver an outstanding Tube for London



Tube Lines

Key upgrades:

- 59 new carriages and four new trains for the Jubilee Line early 2006
- New signalling system for the Jubilee Line 2009
- New signalling system for the Northern Line 2011
- New trains and signalling system for the Piccadilly Line 2014
- Almost 200 kilometres of track replaced or refurbished by 2010

KEY

- T Track Replacement
- ER Enhanced Refurbishment
- M Modernisation
- R Refurbishment

Station names in green are not maintained by Tube Lines

* Heathrow Terminal 5 under construction

CIVIL – DRAINAGE WORKS

JUBILEE LINE	
Kingsbury to Neasden	April 2005
Neasden to Finchley Road	July 2005
Dollis Hill to Waterloo	September 2005 & March 2006
Willesden Green to Waterloo	June 2005
Kilburn to Neasden	June 2005
NORTHERN LINE	
Edgware to Hendon	April 2005
Hampstead to Edgware	May 2005
Finchley Central to High Barnet	August 2005
East Finchley to High Barnet	December 2005
PICCADILLY LINE	
Heathrow to Northfields	February 2006
Ealing Common to Rayners Lane	September 2005
Cockfosters to Wood Green	November 2005

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About Tube Lines

Tube Lines is the company responsible for maintaining and upgrading the Jubilee, Northern and Piccadilly Lines under a 30-year contract with London Underground.

These are three of the busiest lines on the Underground and some of the most heavily-used transport arteries in the UK.

Overall, we are responsible for 320 kilometres of track, 100 stations, 251 trains, 2,395 bridges and structures, 71 lifts and 227 escalators.

London Underground is responsible for the day-to-day operation of the Tube, for employing drivers and station staff and for ticketing and fares.

More than 1.5 million passengers a day and over 500 million a year use the lines we maintain.

Key Highlights

Our achievements

Tube Lines has finances in place to spend £4.4 billion before 2010 to rebuild the Jubilee, Northern and Piccadilly Lines. That investment is already producing tangible results.

Achievements in 2004/5

- Investment of £379 million, some £50 million ahead of our plans. This compares with investment of £221 million in 2003/4
- Improved performance, with 19% fewer lost customer hours and 13% fewer delay-causing incidents, year on year
- Completion of eight station upgrades:
  - Arnos Grove
  - Borough
  - Burnt Oak
  - Kilburn
  - Northfields
  - South Harrow
  - Tufnell Park
  - West Hampstead
- Upgrade work on site at 15 other stations: Boston Manor, Caledonian Road, Chalk Farm, Ealing Common, Golders Green, Kennington, Kentish Town, Knightsbridge, Manor House, Morden, St John's Wood, Stockwell, Sudbury Hill, Sudbury Town and Turnpike Lane. Design work commenced on a further seven stations
- Start of work on site to support Piccadilly Line extension to Heathrow Terminal 5
- 19.2 kilometres of track replaced or refurbished
- Development of a new process for refurbishing escalators, cutting time on site from 26 weeks to 10 weeks

Targets for 2005/6

- Completion of Wembley Park station, increasing passenger capacity by 70%
- Additional carriage to be added to every Jubilee Line train, increasing capacity by 17%
- Completion of a further 12 station upgrades
- Upgrade work to begin on a further 17 stations
- New £10 million training centre to be opened
- Completion of Piccadilly Line fleet improvement programme
- Northern Line Task Force programme to improve reliability
- Almost 30 kilometres of track to be replaced or refurbished

In its second full year of operations, Tube Lines has got into its stride and made solid progress.

Sir Malcolm Field, Chairman

Chairman's Review

We write this year's Corporate Review under the shadow of the appalling terrorist attack on London on 7 July 2005. Many of the passengers killed or injured that day were travelling on one of our lines on one of our trains. Many of the people at the sharp end, working to restore services and get London back on its feet again as fast as possible, were Tube Lines employees. In sharing in the grief felt by all Londoners, we were also immensely proud of the efforts made by our people, far beyond the normal call of duty, to show that London will not be daunted or cowed by terror.

It was of course an especially cruel blow coming the day after the news that London had won the Olympics. As sponsors and supporters of the bid, we were delighted at London's – and Britain's – success. The Jubilee Line in particular will be central to the smooth running of the Games, and we take our responsibilities very seriously indeed.

Away from the headlines, I am pleased to report that in its second full year of operations, Tube Lines has got into its stride and made solid progress.

We have been pressing ahead with our major new projects of investment and have a good story to tell. We are investing three times more a year compared with before we took over, and even better, we are on time and on budget with all our major projects. With station modernisations, escalator renewals, re-signalling and new track being put in place, passengers are beginning to see the benefits of our investment coming through.

It is true that some of these improvements sometimes lead to short-term disruption for our passengers. For example, a new seventh car is being added to every Jubilee Line train in early 2006. This will mean a major change in the quality of travel, cutting over-crowding during peak times, which I know will be very welcome. While bringing in the new carriages will disrupt services for a short period, I am confident that with good communications regarding alternative travel arrangements, we will be able to limit inconvenience.

Day-to-day, our performance has also improved compared with last year. While we have continued to experience difficulties on the Northern Line, the Jubilee and Piccadilly Lines have seen real improvements against the targets we are set by London Underground, with a number of them being exceeded by significant margins.

Although we know that we have much more to do to help bring the service up to the standard that Londoners expect, we are glad that London Underground, Transport for London and the Mayor have all recognised that Tube Lines has been making progress over the last year.

With our major modernisation projects proceeding well, and day-to-day operations improving on the Piccadilly and Jubilee Lines, the major challenge for the coming year is the Northern Line. The particularly poor state of the infrastructure we inherited means that we have had to run very hard merely to stand still. Because of the very limited amount of time we are able to spend working at night, progress is slower than we would like.

One option that we have therefore put to London Underground is to close sections of the Northern Line down so that we can put things right in a much shorter timescale. There is obviously a very difficult trade-off here. Do we want short-term pain for passengers in order to sort out the problems on the Northern Line much more quickly and start providing a decent service? Or is the short-term disruption unacceptable? This is a difficult decision for London Underground to take, but we are committed to working with them to do the best we can to sort out the Northern Line.

More generally over the last year, we have continued to work closely with London Underground and our other stakeholders. We want the partnership to work as well as possible, reducing bureaucracy and speeding up decision-making, which in turn leads to quicker delivery. We know that you need two sides to have a genuine partnership and that the key to it is building trust. We believe there has been progress on this front over the year, demonstrated by the contribution we have made to helping London Underground deliver most of their targets. We are committed to doing all we can to strengthen the relationship further over the coming year.

Tube Lines is fortunate in having a highly skilled and dedicated workforce who have worked very hard over the last year – often out of sight – to deliver improvements to the system. We are committed to helping raise the skill levels of our workforce still further, and therefore have invested £3.4 million over the last year in training and development.

We are also able to call on the skills and know-how of our two strong and highly committed shareholders, Bechtel and Amey. Their expertise in projects and operations means we have real support on both sides of our business.

So, under the leadership of our CEO Terry Morgan, to whom I am extremely grateful, Tube Lines has made good progress over the last year. We know that we still face big challenges, and that we can't take our foot off the accelerator, but the moves forward we have made this year give us confidence that we can build on them further in the year ahead.

Our progress over the last twelve months has justified my confidence, and we can now point to a growing body of evidence that Tube Lines is delivering on its promises.

Terry Morgan, Chief Executive

Chief Executive's Overview

Although the events of July 2005 fall outside the year's activities on which we are reporting, I cannot start this Review without reflecting the mix of emotions that all of us at Tube Lines are feeling at the time of writing. The euphoria of the news that London had won the Olympic bid followed by the despair and shock of the bombs on our tube system. Grief for the victims of terror, mingled with pride at the determination and courage of our employees at starting to get things working again. Tube Lines is fortunate in having fantastic people – never has this been seen more clearly than in the aftermath of the terrorists' bombs.

My main task in this Review though is to look back at our performance over the whole of the last year. Twelve months ago, I said that I was looking forward to our second year of operation with confidence. Our progress over the last twelve months has justified my confidence, and we can now point to a growing body of evidence that Tube Lines is delivering on its promises. Over the last twelve months, our efforts to transform the lines for which we are responsible have gathered pace.

To highlight a few recent successes from many. Last year, we successfully completed the modernisation of eight stations – Arnos Grove, Borough, Burnt Oak, Kilburn, Northfields, South Harrow, Tufnell Park and West Hampstead. We are currently working on site at another 15 stations.

By developing new techniques, we have cut the time it takes to refurbish escalators. Whereas it used to take 26 weeks, this year we managed to refurbish an escalator at Green Park in under ten. In a similar way, by developing new approaches, we have dramatically increased the rate at which we are able to replace track over a weekend. Before Tube Lines took over, the average length of track replaced over a weekend was around 350 metres. Now we typically replace 580 metres over the same length of time. In total last year, we renewed 19.2 kilometres of track.

Work on our £50 million flagship project at Wembley Park station has gone well over the last year, and we are on time and on budget to complete it later this year ahead of the opening of the new stadium. We are also right on schedule with our plans to add a seventh carriage to every Jubilee Line train, which will mean we can carry more passengers and therefore cut crowding. The new carriages will be brought into service in early 2006, four years earlier than originally scheduled. We have also accelerated plans to provide four brand new trains on the Jubilee Line, which we will be introducing four years early.

Overall, we are working at 200 separate sites and have doubled the pace of investment in projects to modernise the Tube. This is a huge undertaking. What is all the more impressive is that we have combined this huge expansion in our project work with an outstanding safety record. Last year we celebrated a major milestone in construction site safety by working more than one million consecutive hours without an accident. That is a magnificent achievement of which our employees should feel particularly proud.

Day-to-day, our performance has also improved strongly. Over the last year, we have cut incidents causing delay to our passengers by some 13%. On the Piccadilly Line there were 40% fewer lost customer hours than the previous year. On the Jubilee Line, lost customer hours were 15% down. On the Northern Line, lost customer hours were down by 2%. Overall on the tube, London Underground recently announced that reliability over the last year was the best it has been for seven years. This level of performance could only have been achieved by London Underground and Tube Lines working together.

The number of zero delay days – days where we are not responsible for any delays on a line – has risen sharply. Over the last year, we had 29 zero delay days on the Piccadilly Line, 54 on the Jubilee Line, and seven on the Northern Line.

Even on the Northern Line, where we continued to face problems, underlying performance improved, although certainly far more slowly than we would have liked. We have started to address that by launching an accelerated programme to reduce signal failures, speed up essential track repairs and improve rolling stock.

These are, however, relatively short-term fixes. The fundamental overhaul of the system that is needed on the Northern Line will take until 2011 under present plans. So an important question for us all is whether we can find ways of bringing the work forward so that Londoners can enjoy the benefits sooner. We are working with London Underground to explore the potential for this.

In terms of our financial performance, our income for the year was £864.4 million. Operating costs were £734.4 million, leaving a profit before tax and after interest of £57.1 million. During the year, Tube Lines also refinanced its £1.8 billion debt facilities, borrowed to fund its investment programme. We were able to do this because of improvements in capital markets, and the fact that there was greater certainty over the PPP contracts than there was at the time they were originally signed. The re-financing yielded savings of £81 million, of which just under two-thirds were passed to London Underground and a third retained by Tube Lines.

To take such a major programme of modernisation forward, we rely on a highly skilled workforce. That is why we are so committed to training, and why we have invested more than £10 million in a new centre at Stratford. Offering courses from basic safety training to two-year advanced technical courses, it will open this summer.

Not only will this help our staff raise their skill levels and enjoy more fulfilling jobs, it will also help local people acquire the skills they need to get started on the jobs ladder. I am very pleased that this year we also doubled the number of young people we took on under our Apprenticeship scheme to 24.

Within the Stratford centre there will be a specialist training school providing two-year courses for signalling engineers. We will be able to train up to 100 signalling engineers at any one time with 28 full technical officers graduating from the course every year. This is a very practical contribution to tackling the long-term shortage of signalling engineers from which the tube has suffered, which is itself one of the underlying causes of signal failures. So we are helping our staff and helping improve the Tube at one and the same time.

We have launched the Leading Change Programme in order to help our managers develop and improve their skills and identify the training needs of their teams. We have introduced a new system of Service Awards so that all our employees can get the recognition they deserve for their efforts. We have achieved Investors in People status which recognises the efforts we have made to improve conditions for our employees.

If one of the themes of the last year has been investing in skills and training at all levels of the business, another has been striving for improvements through innovation. To take one example: when Tube Lines took over, we inherited hundreds of outdated processes and IT systems. All of these have now been replaced with a modern, integrated system as part of a £30 million programme called Enterprise Systems.

We have put in place a state-of-the-art control centre at our headquarters in Canary Wharf. This allows us to record and address faults on the network, as they occur, 24 hours a day, seven days a week, and to improve feedback between Tube Lines and London Underground. We have also been rolling out a new approach to problem-solving called Six Sigma, which is enabling us to analyse and improve all our processes.

Another example of innovation bringing practical benefits is the development of an automated test vehicle to check the track for flaws. Whereas in the past, every inch of track has had to be checked manually, in future we will be able to test rails at over ten miles an hour. This will revolutionise the way we work.

So I am glad to be able to report solid progress across the board. Progress on training and developing our workforce. Progress on the use of innovation and technology to improve our delivery. Progress on our day-to-day performance. And progress at pressing ahead with the major projects which are the only way of bringing about the lasting improvements that everyone – us, London Underground, Transport for London and the Mayor – wants.

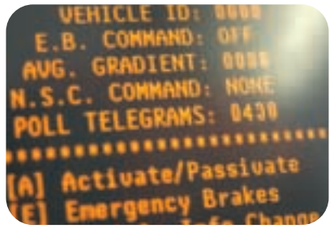
I started the year with growing confidence in our ability to deliver. We have had to face major challenges and we know we can do even better. Despite this, at the end of the year, I am more confident than ever that Tube Lines is well-placed to deliver what Londoners want – an outstanding Tube.

Our Shareholders

Tube Lines has two shareholders – Amey and Bechtel. They provide world-class project and operational management expertise and experience drawn from some of the world's most challenging engineering, construction and maintenance environments.

Amey
Amey is one of the leading integrated support services providers in the country, specialising in the outsourcing of holistic business solutions in the transport, local government, education, health and defence sectors. Amey is also a major force in the provision of PPP and PFI investment and structured finance. The company provides a broad range of support services to public and private organisations and is an established leader in the UK transportation sector, from railways and highways to metro systems, real time customer information systems and vehicle solutions. Amey is a business built on a passion for the very best service, delivered through the very best people, whether for strategic, management or operational services.

Bechtel
Founded in 1898, Bechtel is one of the world's leading engineering, construction and project management companies with operations in over 50 countries worldwide. Bechtel provides technical, management and related services to a range of industries and has worked on some of the most challenging and complex projects in the world. In the UK, where Bechtel has been active for more than 50 years, Bechtel is currently managing the construction of the Channel Tunnel Rail Link and is working with Network Rail to modernise the West Coast Main Line. Bechtel also managed the successful completion of the Jubilee Line Extension and, from 1986 to 1994, was instrumental in bringing the Channel Tunnel to completion.



Performance – how we are measured

Tube Lines' 30-year contract with London Underground is split into four periods of seven and a half years. Day-to-day performance in those periods is measured against three key criteria: availability, service points and ambience. Targets are set in those areas and it is up to us to work towards achieving those targets while balancing maintenance activities and investment.

Our performance against these criteria is assessed throughout our contract. We are paid monthly through an Infrastructure Service Charge (ISC) and the level of payments fluctuates according to our performance against each of the measures.

Availability
Availability is measured by aggregate number of hours lost to customers through delays caused by failure of the infrastructure we maintain.

This is affected by a number of different issues, from train maintenance to line failures, but is mainly influenced by the reliability of the assets we maintain. A more reliable service is demonstrated by fewer incidents that cause lost customer hours.

Service Points
This is a measure of how long it takes to respond to faults on the system and how quickly they are repaired. Better performance is demonstrated by fewer points.

The measure is split into two parts – Facilities and Fault Rectification (FR). Facilities includes items which impact upon London Underground employees' ability to carry out their jobs, such as PA systems, while FR relates to things that might affect passengers, such as a blown light bulb.

Ambience
This is a measure of the quality of the customer environment, including cleanliness, customer information and the general condition of stations and trains. Performance is measured by surveys carried out across the network.

Longer term performance
The measurement of the performance of our investment programme is generally output-based: this means that we are assessed on what our projects deliver, not on the steps we take to deliver them.

Capability: This is a performance measure that looks at how effective the system is at moving large numbers of passengers through it quickly and is measured in terms of average journey times. We have set dates for reducing journey times on each of our three lines. These targets will be met with the completion of new signalling, line upgrades and longer trains.

Asset condition: We have targets for improving the condition of the track, lifts and escalators which we maintain and are measured on progress at the end of each seven and a half year period.

We do have a small number of input-based targets, for example, station upgrades, which have scheduled target dates for completion.

Our People

Tube Lines employs over 3,000 people. The majority transferred from London Underground, bringing with them unrivalled knowledge and wide-ranging experience and understanding of the network. We have also harnessed the talents of people from our shareholders and the wider market who have world-class expertise in project management, the rail industry and business services. We recognise that our people are our greatest asset and that, by investing in them, it will help us to achieve our vision of delivering an outstanding Tube for London.

In the last year, we have invested £3.4 million in training and development for our employees. We have also introduced a range of different schemes designed to increase individuals' skill levels, recruit the best people and ensure they have good career development opportunities.

Investors in People
We have been awarded Investors in People accreditation, confirming our status as a provider of good training and development opportunities and career paths. The award reflects the visibility and accessibility of our senior managers, the commitment we have to our vision, the effectiveness of our communication and the impact that management development is beginning to have on our culture.

Skills Training Centre
We have invested in excess of £10 million in our new Skills Training Centre at Stratford. The state-of-the-art centre, which opens in July 2005, is designed to raise the skills of our employees and bring together classroom-based and hands-on safety, skills and signal training under one roof. The centre has the capacity to hold courses 24 hours-a-day, 7 days-a-week, can provide distance and e-learning courses and is accredited to offer National Vocational Qualifications. It is staffed by a dedicated team of trainers who are all accredited to a national standard.

The centre includes five sections of track and a control room and is fitted with all generations of points and signalling equipment, so that training can be given on existing systems and on those being installed under the new signalling systems. We will be able to train up to 100 signalling engineers at any one time with 28 fully qualified technical officers graduating from the course every year. This is a significant step forward for us in tackling the skills shortage in our industry.

Leadership development
Building the leadership and management skills of our managers is vital to us. All senior managers in the company have been through a Core Leadership Programme, designed to provide them with the skills needed to lead our teams through the challenges we face. Some £2 million has been invested in a Leading Change programme for 650 managers, an innovative four-day course designed to develop key leadership competencies among the people at the heart of delivering the improvements on our three lines.

Graduates
We recognise that we need to attract the best graduates if we are to maintain the high level of skills in the company and achieve our ambitious business goals.

Our graduate schemes typically last two years (three for civil engineering) and they enable graduates to gather wide experience of our business, while also developing their professional capabilities. Each placement is designed to help graduates build up the breadth of knowledge and experience required to play a full role at Tube Lines and mentoring, coaching and training is given to help graduates get the best out of their experiences. In 2004/5 we recruited 14 graduates to these schemes.

Apprentices
We are committed to developing young people and run seven apprentice schemes open to school leavers. They offer an excellent grounding in a number of disciplines within Tube Lines and can lead to skilled positions in the company. The Modern Apprentice schemes are structured to comply with nationally recognised programmes and offer a mix of hands-on work and classroom study. In the year under review we recruited 24 apprentices.

Performance and Development Reviews
Our employees take part in an annual performance and development review (PDR), a two-way discussion designed to give them the chance to voice issues or concerns and to get feedback from their managers. The PDR process sets targets for all employees that can be directly aligned to the business objectives and gives them regular feedback on their progress.

Investment brings greater reliability

Tube Lines' investment in the Piccadilly Line fleet has led to increased reliability and safety and fewer delay-causing incidents for passengers.

There were major problems with reliability of the fleet on the Piccadilly Line at the time of transfer. Wheel sets had not been changed since the introduction of the rolling stock in 1973 and were failing on a daily basis. There were also issues with air conditioning in the drivers' cab and the potential for trains to roll backwards.

With lost customer hours running at unacceptable levels for both London Underground passengers and for Tube Lines, we took the decision to introduce the Piccadilly Line Fleet Improvement Programme, bringing much-needed investment to upgrade all 86 trains in the fleet.

The main part of the programme has been a wheel set replacement project. This £20 million initiative, scheduled for completion by July 2005, has seen the replacement of axle boxes, bearings and other components.

As a result of the programme, lost customer hours on the line have almost halved and trains now stay in service longer, improving reliability dramatically. The project has also enhanced safety.

Feedback from London Underground during the project has been extremely positive and we have been praised for the minimal disruption caused by the replacement.

As well as the wheel set replacement, we have installed a run-back protection system, which eliminates the potential safety risk of trains rolling backwards if 'reverse' has not been selected by the driver, and a dedicated unit that captures information about faults and speeds up repair processes.

In addition, we have replaced the air conditioning units in the drivers' cabs and introduced daily 'health checks' on them, with the result that we have cut cancellations as a result of air conditioning failures to a negligible level.

The Jubilee, Northern and Piccadilly Lines

The rebuilding of the Jubilee, Northern and Piccadilly Lines is one of the largest capital investment programmes in transport taking place anywhere in the world at present.

Billions of pounds are being invested to replace trains, tracks and signals, many of which are decades old, to deliver an outstanding Tube for London.

We will deliver:

- An extra carriage for all Jubilee Line trains in early 2006
- The modernisation of all our 100 stations by 2011, to make them safer, brighter and more passenger-friendly
- A major signalling upgrade for the Jubilee Line by 2009 and the Northern Line by 2011, which will allow more passengers to be transported and reduce journey times
- New trains for the Piccadilly Line and a signalling upgrade by 2014
- An upgrade of almost 200 kilometres of track by 2010, to provide a smoother ride
- Better systems to provide travel information to passengers
- Cleaner stations and trains

Our investment will bring about a faster, more reliable and more comfortable Tube for passengers.

In this section you will find details of key projects on each of the lines as well as an explanation of what our day-to-day activities involve.

The Jubilee Line

More than 127 million people travel on the Jubilee Line every year. Tube Lines is spending £1.25 billion before 2010 to make trains more reliable, stations more modern and journeys more pleasant for the passenger.

2004/5

- **Performance** Delay-causing incidents reduced by 17% on the previous year

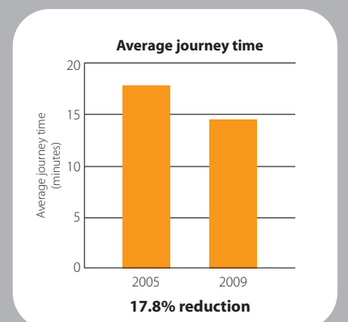
  15% fewer lost customer hours than the previous year
- **Stations** Refurbishment of Kilburn and West Hampstead completed
- **Wembley** Work started on the new £50m Wembley Park station designed to accommodate the demands of the new national stadium. It will feature larger ticket halls, lift access to all platforms, a new footbridge, better lighting and a state-of-the-art CCTV system
- **Testing** New signalling systems tested, new carriages manufactured and tested

2005/6

- **Trains** An extra carriage to be added to every train and four brand new trains to be introduced in early 2006
- **Track** Three kilometres of track to be either replaced or refurbished
- **Wembley** New Wembley Park station to be completed in time for the opening of the stadium in summer 2006, increasing capacity from 22,000 to 37,500 passengers per hour
- **Stations** Modernisation and refurbishment work to be completed at St John's Wood and starting at Finchley Road, Neasden, Swiss Cottage and Willesden Green

Further ahead

- **Signalling** New signalling system to be completed by 2009. Together with the new trains, this will allow:
  - Over 40% more passengers to be carried
  - Over 30 trains per hour to run compared with 24 at present
  - Reductions in journey time of about 18%
- **Stations** All 24 stations to be refurbished or modernised by 2010
- **Track** 35 kilometres of track to be replaced or refurbished by 2010



KEY

- Track Replacement
- Enhanced Refurbishment
- Modernisation
- Refurbishment

Station names in green are not maintained by Tube Lines

CIVIL – DRAINAGE WORKS

JUBILEE LINE	
Kingsbury to Neasden	April 2005
Neasden to Finchley Road	July 2005
Dollis Hill to Waterloo	September 2005 & March 2006
Willesden Green to Waterloo	June 2005
Kilburn to Neasden	June 2005

The Northern Line

2004/5

- **Stations** Modernisation of Borough, Burnt Oak and Tufnell Park completed
- **Track** Seven kilometres of track replaced or refurbished
- **Performance** Passengers saw 2% fewer lost customer hours than in 2004/5
- **Task Force** A dedicated Northern Line Task Force was established to carry out accelerated work on the signals and track to tackle the causes of signal failures

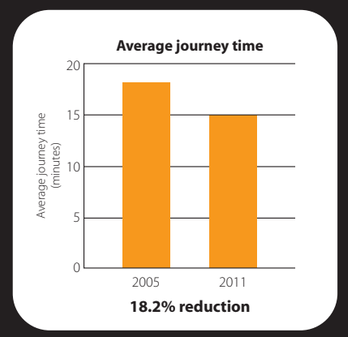
2005/6

- **Track** 15 kilometres of track to be either replaced or refurbished
- **Stations** Modernisation and refurbishment work to be completed at four stations: Golders Green, Kennington, Morden and Stockwell. Work continuing at Chalk Farm and Kentish Town and starting on six more stations: Archway, Colindale, East Finchley, Finchley Central, Mill Hill East and Totteridge & Whetstone
- **Task Force** Further work by the Northern Line Task Force on track, signals and trains

Further ahead

- **Signalling** A brand new signalling system to be completed by 2011. This will allow:
  - 30% more passengers to be carried
  - Over 25 trains per hour to run on each branch in central London compared with 18 at present
  - Reductions in journey time of about 18%
- **Stations** 38 stations to be refurbished or modernised by 2010
- **Track** 75 kilometres of track to be replaced or refurbished by 2010

The Northern Line is the busiest line on the Underground, with almost 207 million people using it each year. It also has three of the busiest stations in the world – Waterloo, Leicester Square and Tottenham Court Road. Tube Lines is spending over £1.75 billion on the Northern Line before 2010.



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CIVIL – DRAINAGE WORKS

NORTHERN LINE	
Edgware to Hendon	April 2005
Hampstead to Edgware	May 2005
Finchley Central to High Barnet	August 2005
East Finchley to High Barnet	December 2005

The Piccadilly Line

More than 176 million passengers use the Piccadilly Line each year, a number set to increase when Heathrow's Terminal 5 opens in March 2008. Tube Lines is spending over £1 billion on the Piccadilly Line before 2010.

2004/5

- **Performance** Transformation in performance, with 40% fewer lost customer hours than the previous year

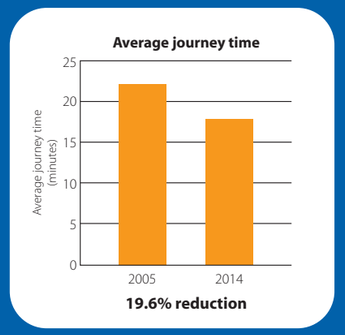
  Delay-causing incidents down by 32% on the previous year
- **Trains** Programme of wide ranging improvements to the fleet launched, helping to boost reliability
- **Stations** Refurbishment of Arnos Grove, Northfields and South Harrow completed
- **Heathrow** Tube Lines started work on providing the power supply and signalling for the Piccadilly Line extension to Terminal 5
- **Track** Three kilometres of track replaced or refurbished

2005/6

- **Trains** Completion of the fleet improvement programme
- **Track** Ten kilometres of track to be either replaced or refurbished
- **Stations** Modernisation and refurbishment work to be completed on seven stations: Boston Manor, Caledonian Road, Ealing Common, Manor House, Sudbury Hill, Sudbury Town and Turnpike Lane. Work continuing at Knightsbridge station and starting on seven more: Acton Town, Alperton, Heathrow Terminal 4, Hounslow Central, North Ealing, Park Royal and South Ealing

Further ahead

- **Signalling** A brand new signalling system to be completed by 2014. This will allow:
  - 20% more passengers to be carried
  - Over 30 trains per hour to run in central London compared with 26 at present
  - Reductions in journey time of almost 20%
- **Heathrow** Completion of the Piccadilly Line extension in time for the opening of Heathrow Terminal 5 in March 2008
- **Stations** 35 stations to be refurbished or modernised by 2010
- **Trains** New trains to be introduced on the Piccadilly line by 2014
- **Track** 75 kilometres of track to be replaced or refurbished by 2010



KEY

- Track Replacement
- Enhanced Refurbishment
- Modernisation
- Refurbishment

Station names in green are not maintained by Tube Lines

* Heathrow Terminal 5 under construction

CIVIL – DRAINAGE WORKS

PICCADILLY LINE	
Heathrow to Northfields	February 2006
Ealing Common to Rayners Lane	September 2005
Cockfosters to Wood Green	November 2005

What does our work involve?

Tube Lines undertakes a huge range of activities in maintaining and upgrading the network. Although a small amount of work can be undertaken during the day, the vast majority has to be carried out at night during 'engineering hours' – the period of time when the Underground is closed to passengers and it is safe to carry out heavy duty engineering and construction work. The time it takes to turn off the power at the start of the night and to prepare the track and stations for the start of service in the morning further restricts the time when we can work on the track. Our working hours tend to last only from about 1am until 4.30am.

Under these constraints, we are reliant on highly dedicated, highly focused people to deliver the essential works needed to keep the Underground up and running every day.

What exactly is involved in maintaining and upgrading the Underground?

Responding to faults

London Underground reports faults that are fed through to our high-tech Control Centre at Canary Wharf. Teams allocated to each line ensure a fast and reliable response when faults are reported. This procedure has improved considerably and response times have been cut on all three lines.

Day-to-day maintenance

Each night, an army of employees and contractors work to ensure the track, trains, signals, points, lifts and escalators are fit and ready for service the next day. Their job is hugely challenging and it requires strict attention to detail to make sure the right people and the right equipment are in the right places every night. We have introduced new technology to ensure we can focus our resources correctly.

Station upgrades

Upgrade work will be carried out at all 100 stations for which we are responsible, with an emphasis on safety, security and better information for passengers. All of the stations will get new CCTV cameras, passenger help points, new indicator boards in the ticket halls and on the platforms, upgraded PA systems, improved seating, new tiles and a general redecoration. Some of the upgrades are known as refurbishments, with a focus on replacing damaged equipment and improving the passenger environment. Other stations receive a full-blown modernisation, where the works include providing assistance for mobility-impaired people and making improvements to waiting areas, toilets, staff accommodation and fire protection systems.

Track work

We renew or refurbish thousands of metres of track each year and have increased the rate at which we do this considerably. In March 2005 we broke all records, replacing 860 metres of track in one weekend. We have increased the average amount of track replaced over a weekend from 350 metres pre-transfer to 580 metres. We carry out four main types of track upgrade:

- Enhanced Track Renewal is renewal and replacement of existing track in the over-ground section of the railway
- Pit Block Renewal is the installation of track running alongside station platforms in the underground sections of the network
- Tube Renewal is the replacement of track in the tunnels between the station platforms
- Life Extension Work is the renewal of track components to extend the life of the track as a whole

Cleaning

We are committed to delivering cleaner trains and stations for our passengers and since transfer have introduced a number of initiatives. We have increased the frequency of all types of cleaning, from intensive 'deep cleans' to litter removal on trains at termini stations. We have increased the amount of cleaning carried out during the day and implemented a zero tolerance policy towards graffiti on our trains – no train now goes into service with graffiti on it.

Flagship projects

We carry out a number of other schemes in response to requests from London Underground that are on top of the work specified in our contract. Some of these are connected with major, high-profile London projects. They have included the enlargement of Wembley Park station, work on the Piccadilly Line extension to Heathrow Terminal 5 and in 2005/6 work will begin to install additional escalators at North Greenwich in time for the reopening of the Dome in 2007. We also carry out a range of smaller projects at the request of London Underground that sit outside our contract, which range from supplying additional notice boards and erecting platform end barriers to providing the facility for train announcements to be made on Piccadilly Line trains.

Green Park Escalator – a record refurbishment

A revolutionary new approach has seen escalator refurbishment time slashed by almost two thirds after a successful trial at Green Park.

Tube Lines is constantly seeking to identify areas for improvement in the way we maintain and upgrade our network. As part of this effort we have introduced new ways of undertaking escalator refurbishments that has reduced the time taken to complete this procedure dramatically.

Escalator refurbishment or replacement is a major part of our work and minimising the disruption caused by it is paramount. Under the previous system, refurbishments took 26 weeks to complete. We implemented some organisational changes after transfer that had reduced this figure to 22 weeks, but we set ourselves a challenge to drive refurbishment time down still further.

The resulting new approach was trialled on an escalator at Green Park station in October 2004. A record-breaking nine weeks and three days later, the refurbishment was complete.

The new procedures which helped us achieve the record, some of which were introduced for the first time on the Underground, included:

- Extensive pre-planning, particularly in terms of safety and logistical support
- Establishing a logistics team to ensure the process runs smoothly
- Allocating warehouse space to store materials, reducing delays caused by late supply
- Allocating dedicated site managers to the project to solve problems and capture learning
- Working during the day to make full use of time available
- Cordoning off work site areas
- Providing rest and refreshment facilities for the refurbishment team to cut down on time spent travelling off site
- Streamlining the assurance process with London Underground so the escalator could be handed over as soon as refurbishment was complete

Following the successful trial, a workshop was held to review the project, attended by the frontline team involved. The lessons learned from the trial, and the subsequent review, were incorporated into the next escalator refurbishment at Camden Town and fast-track renewals are now being rolled out elsewhere across the network.

Safety underpins everything we do, from the safety of our assets to the physical well-being of our employees.

Health, Safety and Quality

Tube Lines takes an uncompromising approach to the issues of health, safety and quality, which is why we are increasing our investment, developing the use of new technology and, where necessary, making changes in the way we work to deliver improvements in these areas.

Our health, safety and quality programme is directed towards:

- Ensuring that the business is provided with the appropriate level of health, safety and quality expertise to meet its business objectives and corporate responsibilities
- Understanding and working towards reducing risk within our business
- Developing and deploying an improved occupational health strategy
- Developing a new framework and content for standards and procedures to generate improved maintenance and upgrade performance
- Making quality a recognised and leading value of the business
- Delivering improvements that we have committed ourselves to achieve from audits, inspections, investigations and reviews
- Establishing a health, safety and quality culture within the business and providing the training needed to enable all our employees to fulfil all their health and safety responsibilities

Health and Safety

We are committed to maintaining and consistently improving our good safety record. We operate under a Safety Case approved by London Underground and the Health and Safety Executive (HSE), which lies at the heart of our approach and structures everything we do. In the year under review, we celebrated a major milestone in construction site safety by working more than one million consecutive man hours without an accident. We intend to build on this in 2005/6.

Open reporting

The development of an open reporting and personal responsibility culture is vital to the success of our safety programme. Minimising risks is key to safety and this can only be achieved if our employees are encouraged to report all incidents in order that we can then take remedial action. To help with this process, we have launched a 24-hour free hotline to allow incidents to be reported as soon as possible after they happen.

New resources

Our investment will help drive safety improvements across the three lines. Older assets are undergoing intensive maintenance programmes to ensure that the system keeps running, but with the influx of new investment these assets can be replaced – improving safety and reliability.

Standards

We are currently working with London Underground to review and improve the standards governing the safety environment for passengers and employees. The improvements will allow us to deliver our programme quicker and more efficiently without compromising safety.

Safety improvements

We are committed to introducing an enabling approach to safety. This has already brought about a whole raft of changes, including:

- Improving working relationships with contractors
- Improving monitoring of contractors' performance and processes for taking remedial action
- Rescheduling Safety Adviser shifts to ensure on-site cover is available seven nights a week
- Developing specific initiatives on occupational health, such as supplying lightweight tools to fitters to minimise heavy lifting
- Developing a new asset risk model, which allows us to focus investment on areas where it is needed most in terms of improving safety and reliability

Quality

Making quality a leading driver of our business will mean moving from basic inspection and control procedures to a more proactive approach. We have increased the business focus on quality and have successfully completed two surveillance visits from Lloyd's Register of Quality Auditors, maintaining, in the process, our ISO9001 quality standard.

We continue to upgrade our management system and streamline procedures. We are also running more training sessions on quality and it now forms part of new employees' induction procedures with our human resources team.

Innovation

In addition to tackling long-term underinvestment, Tube Lines deploys its world class expertise to generate innovations, new processes and technology to deliver faster, better and more efficient improvements to the network.

Speeding up of fault-detection systems

A pioneering programme is being introduced that will speed up the process of detecting faults on the network. We are developing a solution where ultrasonic testing equipment can be attached to a train-borne system that can test rails at in excess of 10 miles an hour, more than quadrupling the amount of track we are able to test at any time. Further automated ways of detecting track flaws will be developed throughout 2005/6.

Tackling cold weather failures

We are pioneering the use on the Underground of heat-sensing equipment to identify points failures in advance of cold weather. Video and thermal imaging cameras mounted on a helicopter are used to check whether trackside heating pads that protect the points are working properly. The system can also be used to detect faults in high-resistance cable joints. This innovation was extremely successful and helped to ensure that there were virtually no failures on the network during the cold weather in winter 2004/5.

Daytime station works

We have increased the amount of non-safety critical work carried out during the day, as opposed to during night-time engineering hours, to reduce the time it takes to deliver improvements. The work is carried out without having to close stations and disrupt passenger services. For example, at Leicester Square, a programme of painting, cleaning and the provision of increased signage was undertaken during the day, which dramatically reduced the time taken to complete the project.

Whole-life asset management

Our 30-year contract allows us to take a much longer term approach to asset management and planning than was possible in the past. Under our whole-life asset management strategy, which follows best industry practice, we are drawing up long-term plans and timetables, based on leading-edge modelling, for the upkeep of each of our assets. These allow us to evaluate the benefit of different options, regardless of the age of the existing asset and the lifespan of the proposed solution. This, in turn, means we can decide which option – maintenance, renewal or enhancement – is right and when the best time to act is.

Enterprise Systems

We have invested £30 million in our Enterprise Systems initiative, designed to replace and update processes and IT systems we inherited at transfer. The new, integrated system allows more efficient asset management, business planning and maintenance of the network. Hand-held devices can now be used by maintenance teams on site to check the history of the asset they are inspecting or repairing. The Enterprise Systems initiative has also allowed more efficient procurement and delivery of training.

Cutting back on bureaucracy

We have reduced bureaucracy in the paperwork involved in our upgrade projects. Previously, hundreds of assurance signatures were needed before a station upgrade project could begin on site. We have worked hard with London Underground to streamline the procedures and now only 20 signatures are needed per station upgrade. This has contributed to a quicker, more efficient process for delivering our investment programme.

Support Services

Tube Lines is responsible for providing a range of services to London Underground and Metronet across the entire network, as well as managing and upgrading the infrastructure on the Jubilee, Northern and Piccadilly Lines. These are delivered through the Emergency Response Unit, Distribution Services and TransPlant.

Emergency Response Unit
The Emergency Response Unit (ERU) makes sure that the network is made safe and that services are restored as quickly as possible after emergencies such as fires or derailments.

Its 106 employees are some of the most highly skilled and technically able people working on the Underground. They need to be ready to respond to, and be capable of managing, any situation or incident that arises on the network.

We, along with Metronet, invest some £6 million a year in the ERU team and are committed to introducing new technology, total modernisation of plant and equipment and a complete new fleet, stocked and built to the same specification as the fire rescue services. We are also providing further training for ERU employees to ensure their skills are at the right level.

Distribution Services
Distribution Services provides transport and waste management services to Tube Lines, Metronet, London Underground, other parts of Transport for London and the British Transport Police. Using a dedicated team of drivers and fleet vehicles of various sizes, Distribution Services moves more than 50,000 tonnes of goods each year. Items transported range from internal mail to large items of specialist railway equipment such as wheel sets, points and crossings. The unit also provides long- and short-term hire cars and vans with a full support service that includes arranging servicing, maintenance and insurance, accident and fuel card management, processing of fines and congestion charge fees, driver training and advising on road safety.

Distribution Services provides support and assistance for our recycling and air quality initiatives. In 2004/5, it managed the collection of over 13,800 tonnes of rubbish, including 6,810 tonnes collected from stations and offices using the unit's refuse collection vehicles. With the planned increased investment in the network, Distribution Services' business in the road haulage and fleet areas is set to grow, providing a wider and more robust range of services for those companies working to develop and maintain the network.

TransPlant
Our TransPlant division provides a special train fleet to support the maintenance and upgrade work done on the network. The trains deliver materials and equipment around the system to support the improvement programme and day-to-day maintenance operations.

The fleet consists of 43 battery and diesel-powered locomotives and 220 wagons. The trains are driven by some 100 specialist train drivers who are able to operate across the entire network. Over the last year, we have invested some £4 million in TransPlant to improve rolling stock, introduce new technology and bring in safer working practices. This extra investment will help us in delivering our programme to rebuild the Jubilee, Northern and Piccadilly Lines.

TransPlant also provides a wide range of specialist services, including track recording, small plant hire and ventilation shaft cleaning, and provides equipment such as cranes and the tunnel clearing train.

Tube Lines is committed to being an environmentally responsible corporate citizen and takes an uncompromising stance in its approach towards the environment. We are also taking an active role in public life, supporting a whole raft of initiatives in the local communities served by our lines and stations.

Environment and Community

Environment

ISO 14001

We are working towards attaining the international environmental standard ISO14001 by December 2005*. In order to achieve accreditation, which is one of our contractual requirements, our Environment team has launched an Environmental Management System called 'Go Green.' This initiative is designed to reduce the impact we have on the environment, focusing on our six key impact areas: noise and community nuisance, waste, pollution, material use, energy use, and wildlife and heritage.

Environmental training for all employees began in September 2004 and was followed by the full launch of 'Go Green' in April 2005.

We will achieve certification by demonstrating sound environmental management practice and ensuring continuous improvement plans are in place.

* Distribution Services is already ISO14001 accredited.

Recycling

Following a successful recycling trial at termini stations on the Jubilee, Northern and Piccadilly Lines, a recycling initiative has been rolled out to other stations on the network. Newspaper waste, recyclable paper and cardboard collected from trains are sold to London recycling companies, with the proceeds going to charity. In the four months of the pilot, some 46,000 bags of newspaper waste were collected, generating £11,000 for haemophilia research charity, the Katharine Dormandy Trust.

We are also working hard to recycle office waste and our Environment team is driving recycling programmes across the company.

Community

We are involved in many local community initiatives throughout London, including:

Championing the 2012 Olympic Bid

We are fully committed to playing our part to ensure that the 2012 Olympics and Paralympics in London are a success. Our upgrades to the Jubilee Line are an important part of the transport improvements which will make it quick and easy for people to travel to the Games. In addition, we were an official Champion of London's Olympic Bid.

Supporting London's Transport Museum

We are the principal sponsor of London's Transport Museum.

Developing partnerships with schools and education

- Sponsoring the Shakespeare Schools Festival – our sponsorship helped schoolchildren and their teachers from 127 schools rehearse and perform Shakespeare plays at 10 London theatres
- Our Skills Training Centre has been supported by the local Learning and Skills Council and the centre is developing partnerships with education establishments to boost training opportunities in the local area
- We have provided opportunities for students from schools served by our three lines to visit our sites and meet our employees

Drug and vandalism-busting measures at stations

We have introduced new facilities at stations such as coin-operated toilets designed to deter vandals and even innovative lighting inside toilets that prevents addicts using them to take drugs.

Corporate Governance

Tube Lines is committed to maintaining the highest standards of corporate governance, believing that good governance is about more than satisfying check lists and meeting legal obligations. For us, good governance is about increasing understanding of how governance works in practice and demonstrating that it can support the breadth of issues that will enable delivery in the business of our vision to deliver an outstanding Tube for London.

The Tube Lines Board is accountable to shareholders for good governance. It is the Board's policy to manage the Company broadly in accordance with the Principles of Good Governance and the Code Provisions set out in the Combined Code on Corporate Governance, in as far as compliance is appropriate for the Company.

The Board

The Board is responsible for the overall direction, strategy, performance and management of Tube Lines.

The Board delegates certain responsibilities and authorities to the following committees:

- Executive Committee
- Investment Committee
- Health, Safety, Quality & Environment Committee
- Risk Management and Audit Committee

Results

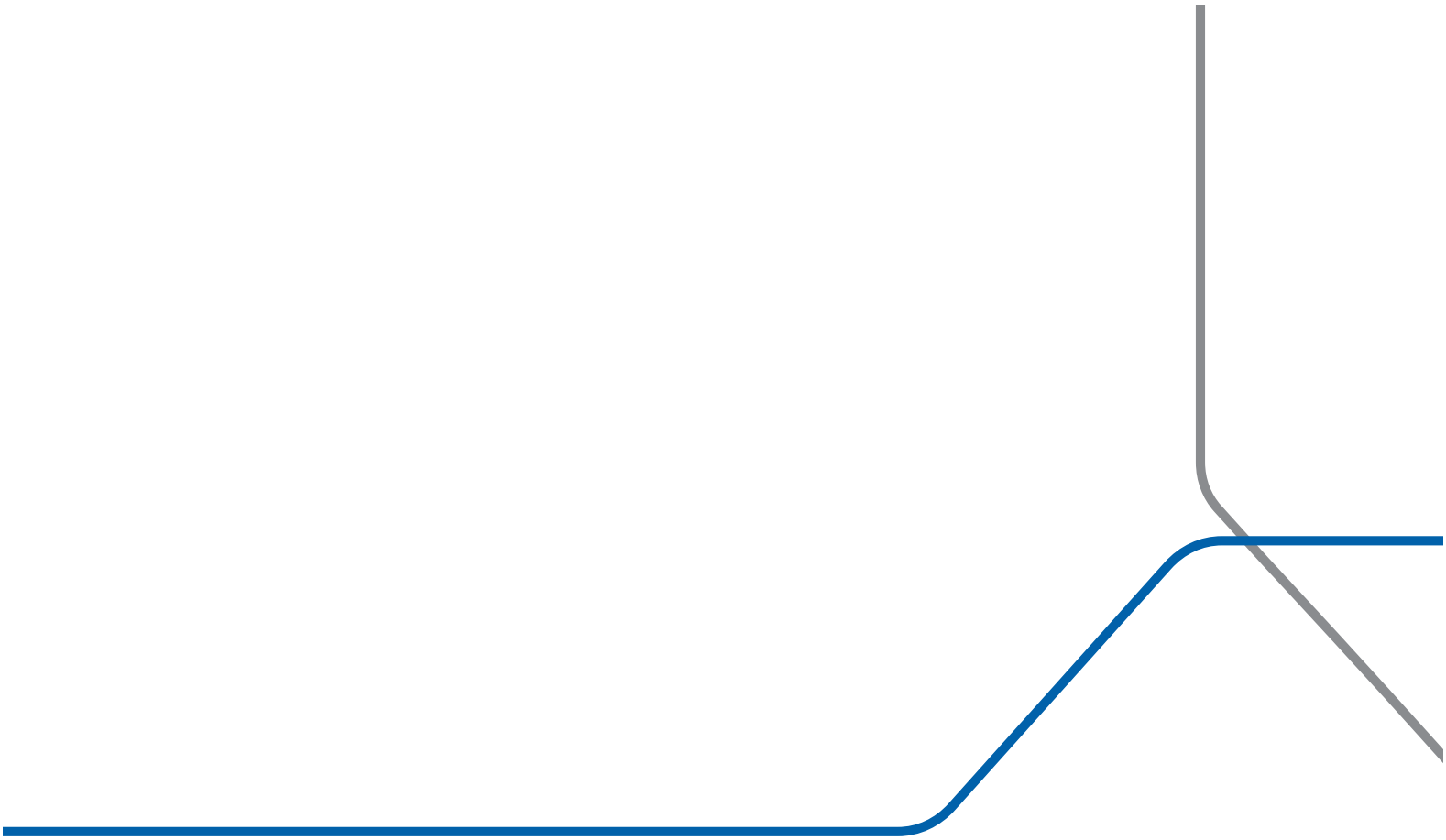
The Company is responsible for improving the performance and infrastructure on the Jubilee, Northern and Piccadilly Lines as part of the government's Public Private Partnership (PPP) of the London Underground. On 31 December 2002, the ownership of the Company was transferred from London Underground to the private sector, as part of the London Underground PPP.

Ownership

The Company is a subsidiary of Tube Lines (Holdings) Limited, which is owned by Amey, part of Grupo Ferrovial, and Bechtel Inc.

Pensions

The Company contributes on behalf of its employees either to the TfL Pension Fund, for former London Underground employees, or to the Tube Lines Pension Scheme.



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